

## **REMARKS**

Reconsideration of this application, as amended, is respectfully requested.

In an Official Action issued on June 12, 2003, the Examiner objects to the drawings as failing to comply with 37 C.F.R. § 1.84(p)(4) because reference characters 216 and 226 have both been used in Figure 2 to designate elastic members. In response, Figure 2 has been amended to differentiate the designations of the reference characters discussed above.

Additionally, the Examiner objects to the drawings as failing to comply with 37 C.F.R. § 1.84(p)(4) because Figures 13-15 should be designated by a legend such as --Prior Art--. In response, Figures 13-15 have been amended to add the legend --Prior Art--.

In the Official Action, the Examiner rejects claims 1-4 and 6-17 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,388,789 to Bernstein (hereinafter "Bernstein"). The Examiner also rejects claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Bernstein in view of U.S. Patent No. 6,201,629 to McClelland et al., (hereinafter "McClelland"). In response, independent claims 1 and 15 have been amended to clarify their distinguishing features.

Turning now to the prior art, Applicants respectfully submit that Bernstein does not disclose the structure in which magnetic field generating elements (references 100 and 120 in Figure 4A) are secured to a base. The Examiner indicates in the Official Action, (page 5, line 8) that the member shown in Bernstein and denoted by reference numeral 306 in Figures 9A-9I corresponds to the base. Applicants respectfully disagree. Member 306 corresponds to the lowest portion of the three-layer structure denoted by reference 1 in Figure 4A. Although Figure 4A of Bernstein discloses magnetic field generating elements,

Applicants respectfully submit that such elements are not taught as being secured to a base. The magnetic field generating elements shown in Figure 4A of Bernstein appear to be floating and are not shown to be secured to any other structure. Further, Bernstein neither discloses nor suggests a specific fixing member for the magnetic field generating elements (references 100 and 120).

Additionally, the Examiner indicates that the single plate base having a mirror structure can be considered to correspond to the second silicon layer (reference 306 in Figures 9A-9I) of an SOI wafer employed in Bernstein, and the bonding portions projecting from the base can be considered to correspond to the inner insulator layer (reference 304 in Figures 9A-9I) of the SOI wafer (See Bernstein, column 15, lines 42 et seq.). Applicants again respectfully disagree. As is understood from a reading of Bernstein (particularly at column 9, line 41 et seq.) the thickness of the inner insulator layer of the SOI wafer is approx. 1  $\mu\text{m}$  or 1-3  $\mu\text{m}$  (see column 15, line 55), and cannot be set to a value that enables the position of the mirror structure with respect to the magnetic field generating elements to be sufficiently adjusted. Moreover, the thickness of the second silicon layer of the SOI wafer is taught to be approximately 300-600  $\mu\text{m}$  as specified in column 9, lines 41 et seq. Accordingly, the magnetic field generating elements cannot reliably be secured to the second silicon layer.

On the other hand, in the present invention, the second surfaces of supports are adhered to bonding portions projecting from a base (the bonding portions may be formed of members different from the base or formed integral with the base as a single body), thereby enabling the mirror structure to be fixed out of contact with the base. The magnetic field generating elements are located above the base at the same side as the mirror structure with respect to the base. By virtue of this structure, the conductive element overlaps with the

magnetic field generating elements in a direction parallel to the first and second surfaces of the mirror structure. In other words, as shown in Figure 11 of the present application, a coil on a movable place can be interposed between the surface (268a) of the permanent magnet closest to the base, and the surface (268a) remotest from the base.

Independent claim 1 has been amended to clarify the distinguishing features discussed above by adding features similar to those found in original claims 9, 11, and 12. Consequently, claims 9, 11, and 12 have been canceled and claim 10 has been amended to change its dependency from canceled claim 9 to claim 1. Independent claim 15 has been amended similarly to that of independent claim 1. The amendments to independent claims 1 and 15 are fully supported in the original disclosure, including the drawings. Therefore, no new matter has been entered by way of the present amendment to claims 1 and 15.

With regard to the rejection of claims 1-4 and 6-17 under 35 U.S.C. § 102(e), an optical deflector having the features discussed above and recited in independent claims 1 and 15, as amended, is nowhere disclosed in Bernstein. Since it has been decided that “anticipation requires the presence in a single prior art reference, disclosure of each and every element of the claimed invention, arranged as in the claim,”<sup>1</sup> independent claims 1 and 15 are not anticipated by Bernstein. Accordingly, independent claims 1 and 15 patentably distinguish over Bernstein and are allowable. Claims 2-4, 6-8, 10, 13, 14, 16, and 17 being dependent upon claims 1 and 15, are thus allowable therewith, claims 9, 11, and 12 being canceled.

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<sup>1</sup> Lindeman Maschinenfabrik GMBH v. American Hoist and Derrick Company, 730 F.2d 1452, 1458; 221 U.S.P.Q. 481, 485 (Fed. Cir., 1984).

With regard to the rejection of claim 5 under 35 U.S.C. § 103(a), since independent claim 1 patentably distinguishes over the prior art and is allowable, claim 5 is allowable therewith because it depends from an allowable base claim.

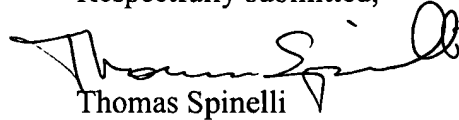
In other words, Independent claim 1, as amended, is not rendered obvious by the cited references because neither the Bernstein patent nor the McClelland patent, whether taken alone or in combination, teach or suggest an optical deflector having the features discussed above. Accordingly, claim 1, as amended, patentably distinguishes over the prior art and is allowable. Claim 5, being dependent upon claim 1, is thus allowable therewith.

Applicants are further submitting an Information Disclosure Statement (IDS) herewith to cite a recently discovered reference, namely, Japan Pat. Appln. KOKAI Publication No. 2001-125036 filed October 29, 1999 and published May 11, 2001 (hereinafter "JP 2001-125036"). An English translation of a portion of JP-2001-125036 is enclosed herewith. The English language translation is being submitted pursuant to 37 C.F.R. § 1.98(3)(i) and (ii). Applicants respectfully submit that claims 1 and 15 also patentably distinguish over JP 2001-125036 and are allowable.

In view of the above, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be

allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicant's attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,



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Enclosure (Partial English Translation of Japan Pat. Appln. 2001-125036)



**Partial English Translation of Japan Pat. Appln. 2001-125036**

[0006] (a), (b) and (c) of FIGS. 2 are a front sectional view, plan view and underside view of a conventional planar galvano mirror.

[0007] A flat movable plate 14, and torsion bars 15 and 16 supporting the plate 14 so that the plate 14 is movable vertically with respect to a silicon substrate 13, are formed integral as one body. A flat coil 17 for generating a magnetic field when an electrical current is applied is provided on one surface of the movable plate 14, and a mirror 18 is provided in the entire portion of the other surface of the plate 14. Reference numeral 19 denotes a base plate on which the silicon substrate 13 is attached, with the mirror 18 on the movable plate 14 directed downwards (towards the base plate). Reference numeral 19a denotes a hole corresponding to the mirror 18 on the base plate 19. Reference numeral 20 denotes wires that connect wire bonding pads 21 provided on the silicon substrate 13 to a pattern 19b on the base plate 19 by wire bonding, thereby enabling the silicon substrate 13 to be electrically connected to the base plate 19.

[0008] A pair of permanent magnets 22 and 23 that apply magnetic fields to opposite sides of the movable plate 14 are secured the base plate 19 at positions parallel to the axes of the torsion bars 15 and 16, and a yoke 24 is placed on a peripheral portion of the base plate 19, thereby constituting a planar galvano mirror.

[0009] The conventional structure shown in FIG. 2 can realize a planar galvano mirror of a large mirror surface, without changing the chip size.